

AMERICAN JOURNAL OF EDUCATION

UNIVERSAL EDUCATION
THE SAFETY OF A REPUBLIC

VOL. XXVIII.

ST. LOUIS, MISSOURI, OCTOBER 9, 1895 No. 10.

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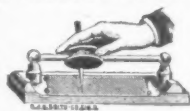
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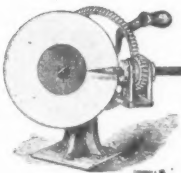
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AMERICAN JOURNAL OF EDUCATION

UNIVERSAL EDUCATION
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VOL. XXVIII.

ST. LOUIS, MISSOURI, OCTOBER 9, 1895.

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GREAT souls—real teachers—are the glory of the community and the people.

THE man who utters a truth—though he speaks low—speaks very loud.

EXCERPTS.

But we are spirits of another sort.

—Shak.

WHO is G. W. P?

Who introduced Prest. Butler to the meeting of the N. E. A. at Denver?

Who is "big" enough to *insult* both, the teachers of the United States and Dr. Butler—in public?

This is the way G. W. P. puts things in the *Boston Journal of Education* in his comments on "The Denver Meeting."

President Butler's address was not strong, but there was nothing in it to make either the author or the listener ashamed of the office or of the man who has filled it with much executive skill during the past year. President Butler was introduced to the audience by a man whom he has doubtless placed under considerable personal indebtedness, but who should have realized that he had an indebtedness even greater to the National Educational Association. The position of the N. E. A. has not always been all that those with high ideals have longed for. But there has never, in recent years, been a time when any "young man"—as Dr. Butler was called that evening, however great his culture, his wealth, his social, or professional position, when any man could add to the dignity or the reputation of the National Educational Association by consenting to become its president.

When the professor of pedagogy at Columbia became the president of the N. E. A. he had an opportunity to add very greatly to his own reputation and to the usefulness and influence of the association.

The manner in which Dr. Butler was introduced to the teachers at Denver was an insult, both to the teachers and to Dr. Butler. It was even more, a humiliation to all

who believe in American education and in the profession of public school teaching.

THE *Saline County Progress*, of Marshall, Mo., says: "Prof. Emberson recently made some purchases for the public school library. During his stay in Marshall, about one hundred and fifty dollars has been expended on the library, which fund was made by means of *school entertainments*. Eighty dollars was turned over by him to Mr. Naylor, the president of the school board, which also belongs to the public school. This is a very creditable showing in the way of library work." Indeed it is—and we hope every school teacher in the State will promptly inaugurate a successful movement of this kind. It can be done easily if teachers pleasantly, vigorously and judiciously work for it as Prof. Emberson has done.

ILLINOIS will establish two new normal schools this year; one will be at DeKalb, the other at Charleston. Generous provision is made for buildings, grounds and equipment. The bill creating them provides that not less than 30 acres shall be provided for a campus in each case, and the buildings are to be large enough to accommodate 1,000 students each. The buildings will cost about \$200,000 each. In the case of the school at DeKalb, a movement is on foot to secure an endowment fund for it, in addition to the amount the state will put into it, and start it with a \$5,000 man at the head, and all the etceteras on a similar broad gage plan.

OUR last national census makes the following exhibit of the relative numerical strength of the several evangelical denominations in the United States:

Episcopalians.....	459,642
Congregationalists	475,608
Lutherans.....	1,056,000
Baptists.....	3,974,589
Methodists.....	4,747,130

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ORGANIZE a lecture course; use, and utilize home talent, the lawyer, the doctor, the minister, the representative in the legislature, the teacher, the older pupils, the W. C. T. U. leaders, the "Farmers, Alliance" leaders. There are plenty to help if once you get *all* the people united and actively interested in your work, for to eyes that can see, what a vision is open when we teach a child to read. What an immeasurable vision the *four hundred thousand* teachers give by their work. No danger of saying too much in *their* favor, or pleading too strong for a proper recognition of their work.

Good health, a good appetite, a cheerful disposition, and some say good looks and a genuine love for children, are some of the qualifications on the part of the teacher that go to make up a successful school. Enthusiasm is an essential qualification for every day, and a teacher who is up until twelve o'clock at night can not be enthusiastic at school next day.

THE *Saline County Progress*, in speaking of a student who passed from the college hall to the harvest field to secure funds to help him on through to graduation, says: "Perhaps in proportion to the number of young men who have given in their allegiance to *Missouri Valley College* as their alma mater, there is a greater per cent of that number, who are endeavoring to *work their way through*, than at any other institution of higher learning in our State. We hardly know which is deserving the more honor, the college or the poor young men whom it is helping up in the world."

CROWDED OUT.

FROM very many cities and towns we hear reports that the schools are so crowded that half day sessions *only* can be held for the primary grades. This seems to be all wrong. Every child is entitled to primary instruction and ought to have it. It is a right of law and a public duty. If for any cause, the school board cannot provide proper accommodation for *all* the children of school age, let it be the advanced classes that are given the half day. It is a nice thing to teach languages, higher mathematics, music and other accomplishments, but the children of the majority of people, who have only a few years in which to attend school and receive a plain education, must not be crowded out.

DAILY find something new and interesting for your pupils. The sameness and humdrum monotony of every day is what kills the interest in all school work. Find something new or a new way of presenting the old. Even the multiplication table may be presented in so many ways that the interest need not flag until it is thoroughly committed.

TELL, TEACH AND TRAIN.—Some tell everything, many tell *some* things and teach *many* things, but the few tell when it is necessary, teach properly, and then train until the child can express the lesson in his own thoughts, using good language in which to express them. Do not consider a lesson well taught until you have it restated by the pupil. Some say "I know it, but I cannot tell it;" this will not do. If you know a thing, you can tell it.

As long as you possess love you are in a divine light. Only hate is darkness; love is light.

PROF. JAMES KIRK has been elected to the chair of pedagogics and school law in the Southern Illinois Normal University. This is an excellent appointment. Mr. Kirk is a man in the prime of life, and is well fitted by training and experience for such a position. He had been elected to a superintendency in Iowa just before this recognition came from his own state but he preferred to stay in "Egypt." Mr. Kirk made many friends all over Illinois while he was Assistant State Superintendent. His appointment will add strength to the Southern Ill. Normal.

THE Editor of "*Educations*" asks, in his comments on the "Cleveland Meeting" with its "indefinite pedagogic mirage" whether "they follow Herbert or his demented followers?" The fact is, things were so mixed by the Brooklyn ring master and his noisy, unsteady, gavel that it is yet an unsettled question whether any one except Dr. Harris was followed, or whether there was much else but his report that was worth following. There seems to be a sort of an "indefinite pedagogic mirage" in Brooklyn, too, under the leadership, or lack of leadership, on the part of this same crimson-tinted pedant who undertook to lead with a red light the meeting at Cleveland. It seems "at the meeting of the board of estimate in Brooklyn, Mayor Schieren said that, in his opinion, the salaries of the teachers in the high schools are too high, and at his suggestion \$80,000 was cut off the teachers' appropriation asked for by the board of education. The mayor declared that Brooklyn was paying the teachers higher salaries than were paid in private schools. When the appropriation of \$45,000 for evening schools had been shaved down to \$20,000, he remarked: "I think that is all we ought to waste on that."

Evidently the mayor of Brooklyn has taken the proper measure of the Supt. of schools of that city who at home, as well as abroad, is counted only as an "indefinite pedagogic mirage." We hope the good women of the W. C. T. U. will keep up their efforts in his behalf.

THE AMERICAN JOURNAL OF EDUCATION will most cordially and enthusiastically join in the work of the *Educational Press Association of America* on the basis laid down by Pres. A. E. Winship in the JOURNAL OF EDUCATION of Sept. 12, as follows: "The educational press asks no favors, will accept no dictation, but it will have from this time onward the respect that is its due, the courtesy to which it is entitled, the recognition that it has earned. From this time the meetings of the N. E. A. will be for the highest interest of the profession and nevermore for the glorification or personal advantage of a man or of men."

IN the 'budget' of expenses for the schools in New York City amounting to \$5,703,579.17, \$3,718,327 will go to pay the teachers, \$278,000 and over will be paid to janitors, \$234,271 for maps, books, &c., for lectures to working men, \$31,500, American Flags, \$7,500 and so on up to \$5,703,579.17.

Make up your mind resolutely to be cheerful; don't magnify your mistakes. Perhaps some of you will become so discouraged you will be tempted to leave your schools before the term is finished. To those we would say, "Don't do it," it will be a life long regret if you do. There will always be difficulties wherever you go and whatever you undertake.

Keep a brave heart, look the situation squarely in the face as a general would, note the weak places and endeavor to strengthen them, keep cool, don't get frightened, and success will be yours before you know it.

ST. LOUIS NOTES.

THE ST. LOUIS SOCIETY OF PEDAGOGY.

THE first meeting of the Society of Pedagogy was held at the High School building on Saturday, Oct. 5th. The attendance was larger than at the beginning last year, and the various sections were well organized and the work begun in earnest for this year. Meetings will be held every first and third Saturdays in each month.

The work of the society is now carried on through the agency of nine Sections with a view to the more extended and more thorough study of the following subjects:

SECTION I. Pedagogy. Leader, F. Louis Soldan.

SEC. II. Psychology. Leader, E. H. Long.

SEC. III. Ethics. Leader, William M. Bryant.

SEC. IV. A course in English Literature. Leader, Wm. Schuyler.

SEC. V. History. Leader, F. E. Cook.

SEC. VI. Art. Leader, Amelia C. Fruchte.

SEC. VII. Science. Leader, G. W. Krall.

SEC. VIII. Kindergarten. Leader, Mary C. McCulloch.

SEC. IX. Laboratory Course in Chemistry. Leader, W. J. S. Bryan.

Membership in the society costs only *one dollar a year*, and entitles you to attend any or all the Sections at your option.

TEACHERS' PENSION FUND FAIR.

At its meeting held last Saturday, the Teachers' Mutual Aid Association appointed a committee of nine members to make preparations for a grand fair, to be given for the benefit of the teachers' pension fund. The members of the committee are Assistant Superintendent George T. Murphy (Chairman), John S. Collins, H. W. Prentiss, N. Wayne Prewett, Katie Hackstaff, Isabel Kelly, Ella M. Brockman, Hannah J. Skillman and Ellen F. Stearns. In Philadelphia, where the same idea has been tried, the receipts of the fair

amounted to over \$80,000. In consequence, the teachers' pension fund in that city is now above \$125,000.

The Board of Trustees, by which the teachers' pension fund is to be governed, will soon be completed. By the enacting law the board is to consist of seven members, the Superintendent of the Public Schools, four School Board Directors and two representatives from the teachers. The four School Board Directors have already been chosen. They are Messrs. Dieckman, Ulrich, Sheehan and McClain. The teachers will select their two representatives at the close of the teachers' meeting to be held this month.

TO RESUME QUARTERLY MEETINGS.

After a lapse of over twenty years the quarterly meeting of all the teachers of the public schools will be resumed. In former times there was no meeting place sufficiently large for all, but now Supt. Soldan, convinced of the utility of the undertaking, has decided to call a meeting at the High School Auditorium, probably on October 19, and on that occasion he will discuss the course of study and methods of instruction to be pursued. Each quarter these meetings will be held. Heretofore the superintendent could only speak indirectly to the teachers by means of the monthly principals' meetings, but henceforward no teacher will have any excuse for misunderstanding the method of her work. In addition to these quarterly general meetings, Supt. Soldan has also determined on frequent "grade" meetings.

EAST ST. LOUIS NOTES.

At the meeting of the St. Clair Co. Teachers' Association on Sept. 28th, Dr. C. C. Van Liew, of Normal, Ill., made a very able address on "Types in Education." T. J. McDonough's paper on the "Education of the Hand" was first-class in every respect. We hope to give it in the JOURNAL in the near future.

St. Clair County has very bright prospects for securing an Assistant County Superintendent. We hope the County Supervisors will grant this much needed request of the friends of education.

COLLEGE NOTES.

Missouri State University.

THE State University of Missouri begins a new scholastic year under the most auspicious circumstances. The new constructions consequent on the burning of the old university, as, for instance, the new Academic hall, are now for the first time made available. The students will find, as far as buildings and appliances are concerned, almost a new university. Missouri is fortunate in having in its chief school an institution with the prestige of more than fifty years of existence and yet provided with all the modern facilities.

The effort to popularize the university, to make it a school of and for all the people of Missouri, has been continued. The law of the last session of the legislature providing for free county scholarship was adopted with this end in view. A virtually free "farmers' course" has been announced, beginning in December. Senators and representatives have been urged to exercise their privilege of appointing cadets to the university battalion.

It is believed that the result of this work in the line of modernizing and improving the university, and of bringing the people and the university together, will be made apparent in the coming year, but indeed the effect will be continuous and will be more distinct ten years hence than now.

The people of Missouri who own this great school, who have witnessed the events of its later history, its magnificent endowment, its rise from the ashes, and the beginning of its new life and career, will watch with interest its work in the year just begun.

SHURTLEFF COLLEGE.

SHURTLEFF COLLEGE began its sixty-ninth year on the 12th of September, with a very large attend-

ance of students, and every prospect of a most successful year of work. Several new professors have been added to the teaching staff, among them Prof. George E. Chipman, M. A., of Harvard University, and Prof. J. A. Smith, M. S., who has been for some time past a member of the faculty of the University of Chicago.

WESTERN NORMAL COLLEGE.

THE fall term opened Sept. 3, with an excellent attendance. All departments are in active operation and the business department, especially, is doing very fine work under the management of Mr. E. C. Mills. In the collegiate departments, the number of students who are entering with the expectation of remaining to complete an entire course is especially noticeable. All dormitory rooms have been freshly papered and many other improvements have been made which will contribute to the comfort of the students.

BUSHNELL, ILL.

LAFAYETTE COLLEGE.

LAFAYETTE COLLEGE will hold a celebration on October 24th in honor of Prof. Francis A. March, L. H. D., LL. D., the distinguished philologist, who this fall completes his seventieth year and forty years of service in the college. The speakers will be Dr. John Fox, of Brooklyn, Dr. John R. Davies, of New York, Dr. James C. MacKenzie, of Lawrenceville, N. J., Dr. Stephen G. Barnes, of Mass., and Dr. Samuel A. Martin, President of Wilson College. It is also hoped that a representative of Amherst College will speak for Dr. March's Alma Mater, this year being the jubilee of his graduation.

BELLEVUE COLLEGIATE INSTITUTE.

THE Bellevue Collegiate Institute, situated at Caledonia, Mo., opens up the

fall term under most favorable circumstances. Prof. J. V. Curlin, the new president, is a graduate of the University of Kentucky and one of the best college men in the country. He is a teacher of rare ability in imparting instruction and in exercising an elevating discipline in school work. Under his management the work done in this school will be thorough, systematical and practical.

The present year of Missouri Valley College bids fair to be the best in her history. It has opened under the most favorable auspices. The attendance is larger than ever before at this period of the year, the enrollment being 221 at the beginning of the second week. Before the close of the year it is expected to reach 275 and possibly 300.

WHAT is that about half rate on page 31?

THE need of special training of kindergarten teachers is now fully supplied by the Chicago Kindergarten College. This college, situated on the lake front at 10 Van Buren street, is doing a grand work for the kindergarteners. Their "Convocation of Mothers" has been postponed until Oct. 23rd, 24th and 25th.

I HEAR men speak continually of going to a "better world," rather than of its coming to them; but in that prayer which they have straight from the lips of the Light of the World, there is not anything about going to another world; only of another government coming into this, which will constitute it a world indeed—new heavens and a new earth: "Thy kingdom come; Thy will be done on earth as it is in heaven."—*John Ruskin.*

ALL about that Dictionary on page 27.

W. J. Cord, Dentist, 1325 Washington Ave., (cor. 13th St.) Bridge work. \$6.00 a tooth; gold filling, \$2.00; all other filling, \$1.00. Everything first-class. Hours, 8 to 6; Sundays, 9 to 3.

PROMOTED.

To do this deed, promotion follows.

—*Shak.*

WHAT deed? To fill the bill. That always prepares for the next step higher. It lays the foundation solid. A young man called upon us a few years ago and asked for letters of introduction. We gave them. After a time response came like the following: "The young man you sent us filled the bill." Soon from another direction, came the same sort of statement did his work so well, that he has early taken a better position; he filled the bill. A short time and he was admitted to the bar. He had laid the foundation so solid that when an important case was entrusted to him, he won it, and a friend reported "Yes, he is all right; he filled the bill." Later on—not much later, either, he was holding an important position in a large corporation and here, too, "he filled the bill."

He did not seek for "soft places" and "soft snaps." If there was a hard, tough, ugly, disagreeable job, he was sent to straighten it out, and settle it up, and all this culminates now in the following announcement: "Mr. L. F. Parker has been appointed Gen. Attorney for the St. Louis San Francisco Railroad to succeed Mr. E. D. Kenna, recently appointed General Attorney for the Santa Fe System. His head quarters will be in St. Louis.

Mr. Parker has been the Chief Assistant Attorney for the past five years, and the Frisco management believes in the wholesome policy of promotion for merit and faithful service.

Mr. Parker's friends, east as well as west, will rejoice over this well-earned, well-deserved promotion. Mr. Parker is an able, broad-minded lawyer, and has been eminently and honorably successful in other lines of practice. He is a great worker, and has what the farmers call a long head. He has also a sagacious and prodigious faculty of performance. never lets go, yet works easily and successfully. He has grown according to the needs of his profession, and as these problems have grown, so has his ability and comprehension of them grown, until he stands to-day master of the situation, an attorney sufficient for his position, an officer equal to his office. He fills the bill. Promotion follows. The world waits anxiously for competent men along all lines.

PRAYERS for opening and closing Public Schools. Price 25cts. Address, Rev. U. P. Heilman, Athol, Pa.



MODERN EDUCATION.

BY WILLIAM M. BRYANT, M.A., LL. D.

VIII.

NOW, it need hardly be said that the science based upon this central Law of Thought and unfolding it in its most general applications, is one of the earliest of the sciences in its development and is known under the name of *Logic*. Nor need it be urged—since it is something no one will deny—that this science, as furnishing the essential, primal forms of all possible science, is the ultimate or universal science. That is, again, the most universal forms of Thought are also the simplest, and hence were the first to be apprehended and adequately unfolded.

What it is desired more especially to emphasize just here, however, is the fact that the universal science thus developed is, above all, the science which demands the conscious, deliberate, most carefully critical use of *Language*. Logic simply sets forth in explicit, orderly arrangement the universal and necessary forms of Thought, as by analysis those forms are found to be organically embodied in human speech. We are not compelled to use these forms. But if we neglect them it is at our own peril. The healthy mind is likely to follow them. It may be consciously; it may be unconsciously. To follow them consciously means that one has attained critical habits of thinking. If unconsciously only, it is evident that such critical

1. We have already noticed that the general or universal is what mind, from its own inherent nature, first apprehends.

habits have not been formed. And the probabilities of unconscious error are manifestly multiplied correspondingly.

But, let us repeat, what has just been said concerning Logic is not so much with a view to emphasizing the importance of the study of this science. Here, too, for the purposes of school education there are manifest limits; and for the general student only the fundamental, absolutely essential forms ought to be included.

Rather I would take from Logic the clew to the profound, far-reaching significance of *Language* as the indispensable medium, or rather (to repeat an expression already used) as the actual *organic form* of all thought. Theoretical logic is the science of Thought. Practical Logic is thought expressing itself in rigidly exact form. But the form is still language. And as all real thought is necessarily of one and the same kind, differing only in degree of clearness and accuracy and adequacy, it is evident that there is a certain logical quality in all thinking, nay in all intellectual or even mental activity, using the term "mental" in its widest sense as including will and sensibility no less than intellect.

It may be true that "all knowledge begins in sensation." But it is not less true that knowledge speedily passes beyond the range of sensation into that of Thought in its more precise, explicit character. Strictly speaking, indeed, *knowledge* cannot exist at all for the individual save in so far as his intellectual activity involves Thought as well as sensation. The simplest, vaguest sense perception implies that some object is apprehended. But this means that such object is distinguished from surrounding space; and this again means that an act of discrimination (that is, of thought) is already implied in the most rudimentary degree of sense-prescription.

How much more, then, must the actual, explicit recognition of both likeness and difference be involved in the formation of the concept—for example, that of a rose. You *perceive* the rose (through the sense of vision) only as color and form. Your individual experience *without the name* constitutes the sense-product. But when you examine the rose as to its structure and know that such structural form is suited to, and has in fact arisen as the outer expression of a certain functional activity—when you know this and know that function and form are but complementary aspects of a universal type forever in process of realization through countless particular forms, then you have begun to comprehend in your own mind the richer significance which the mind of the race has gradually developed in and through the word "rose."

And yet, whether in the race-mind or in the individual mind the beginning point is necessarily far simpler. Then percept and concept approach each other much more nearly. You *see* an object, and the result is a percept. That is, a new mode is established in your mind—a mode that persists; for a sense of the same relation to the external object may be repeated in your experience even though the object itself be destroyed. This seeming reappearance of the object is what is called a "mental image." The whole product—the subjective mode together with the image as its objective aspect, is called a *percept*. And it is well worth while to remind ourselves that even this percept is already universal, or typical in character. But very early in the individual experience's the object perceived is recognized as having a special character which the image does not serve to express. A quality is apprehended—for example, a sweet taste—by which the *particular object* becomes indiffer-

ent and the *universal quality* alone is of interest. There is concentration of the *sensuous* aspect of attention upon some one object indeed; but this is merely incidental to the recognition of the object as *one of a kind*. And this is possible only through the *thought-phase* of consciousness. At the outset no doubt these two aspects are still inseparably and well nigh indistinguishably blended. But the latter aspect is none the less real, and of itself constitutes what may be called the "rough sketch" or rudimental form of the *concept*. And it is of first importance to note that the actual development of the concept, even in this initial phase, is possible only in so far as it includes the unfolding of the concept into its organic, objective form—that is, into a *word*.

Thus, however closely associated perception and conception may be, they never wholly fuse. One does not grow out of the other. They belong, in strict truth, to widely different degrees of intellectual activity, and are to be infallibly distinguished in the fact that the objective aspect of a percept is always an *image*, (that is, a more or less conscious reference to a particular space-form), while the objective aspect of a concept is always a *word* as necessarily implying a more or less conscious reference to a universal relation.

IX.

It has seemed worth while thus far to emphasize this point in the present connection because of the peculiar significance, in all the sciences, of what is known as "*observation*". For observation is nothing else than perception subordinated to, and hence refined and deepened in significance by thought. It is the special exercise of perception in direct connection with the forming of concepts. And the formation of concepts is a necessary aspect of classification,

which we have seen to be an essential feature of all science and which, as may now add, is the leading feature especially of the biological sciences as being the sciences which above all others give emphasis to classification.

It is evident, then, that the mere *exercise* of the senses does not answer the demands of education even at the most elementary stage. On the contrary the senses must be trained into efficiency as the indispensable media of *observation*. And it cannot be too strongly insisted upon that throughout the whole range of the sciences observation is essential at every step. It is not more needful that the auditory nerves of the musician should be trained to utmost delicacy of responsiveness as media in perception of sound than that the visual nerves of the scientist should be trained to the finest precision of adjustment as media in perceiving form and color.

But though observation is of such measureless importance for the precise ascertainment of the thought-forms constituted by the various phenomena of nature, there is an equally high demand for precision in the use of the *terms* by which the essential significance embodied in the forms of the outer world may with as much exactness and adequacy as possible be re-unfolded in human language. Only in this way can we hope to secure an accurate rendering of the laws, the principles, the myriad aspects of Truth forever unfolded and unfolding into organic form in nature. For what is Nature but *natura*—the eternal birth-process of Divinity thus dimly to be apprehended in His character of eternally begotten Son?

If, then, the most careful training is necessary so that observation may be equal to the task of teaching the exact forms of the natural world; there is surely not

less necessity that human thought as such should also be disciplined to the utmost degree attainable in order that the Thought expressed in the forms of Nature may be rightly apprehended and interpreted. And since for the human mind language is the necessary embodiment of thought—so much so that without language as its organic form human thought is impossible—we have the very highest reason for concluding that in the whole range of education nothing is or could be more essential, that nothing else, in truth, requires so wide a range or so delicately exact a mode of discipline as does language. If the Creator's thoughts are expressed to us most directly in the forms of the world about us, so the whole range of human thought is embodied for us in the literature of the race. So that from infancy onward and side by side with the training of the senses in observation there should proceed the most careful discipline in the use of language.

But here again, the *essentials*! Language is the organic form of Thought. Shall we begin formal instruction in language with lessons composed of words embodying no thought? It is an absolute contradiction in terms! A "word" that presents no meaning to me is not yet to me a *word* at all! It is but inarticulate sound. Only when it comes to me as *living*, only when it comes as the present embodiment of an actual concept can it be for me an actual word. Pity that in the very attempt to teach language to children they should be regarded as imbeciles, and for this reason be provided with "reading lessons" which, from their utter lack of significance, furnish the least possible occasion for the victims ever awakening to a gleam of rational life!

And yet the case is not altogether hopeless. Human beings are born to rationality, and that with an impetus reaching back through

an accumulated inheritance of thousands of generations, and forward through an infinity of promised growth. It is impossible to construct an educational system bad enough to wholly smother this impulse!

And yet in the department of language wonders have been done in this direction! Instead of carefully training the pupil in the actual use of language to the end that he may express with precision his gradually unfolding thought, there is grammar and ever grammar! Instead of cultivating his intelligence through the prolonged study, both in substance and in form, of selections chosen from among the perfect products in the field of literature, there is rhetoric and ever rhetoric! Instead of living, life-giving forms, repulsive skeletons! The very history of literature, the study of which ought to yield the very richest results, is sometimes travestied to the extent of reducing it to little else than a catalogue of names and dates with the merest anecdotic details.

No doubt grammar and rhetoric have their valid uses. Grammar is the science of language in general as rhetoric is the science of those forms of language suited to the purposes of direct address. And a scientific knowledge of language in both respects is undoubtedly of the highest practical importance. But let the text-books be reduced to those essentials which alone belong in a text-book, and let the endless multiplicity of details be collected and assorted in the "unabridged" reference books to which resort may be had as occasion may require.

Such details are in fact worse than useless to the youth who is struggling into self-definition. This process depends upon his assimilation of the concrete forms of language as organically embodying, and hence as unfolding in their specific characters, the broad fundamental principles constituting the very nature of human Intelligence.

SCIENCE IN THE GRAMMAR SCHOOL.

BY J. W. EMMERSON, PRINCIPAL, HIGH SCHOOL, NASHVILLE, ILL.

Paper read before the Southern, Ill. Teachers' Association at Metropolis City.

WE live in a scientific age. The literature of this last quarter of the 19th century speaks mainly of the triumphs of science. Man is every day learning more of the wonders of nature. He is every day becoming more familiar with her laws. He is fast learning his relations to his natural environments and is thereby enabled to live a nobler and more useful life. A knowledge of these things then is a prime necessity in our day and age of the world, and to realize this fact we have only to behold the signs of the times.

Never has the world dreamed of the progress which science has made during this latter part of the 19th century. To-day if an event occurs in far off Asia, the intelligence is flashed across the continent almost in the twinkling of an eye; with the rapidity of lightning it is transmitted beneath the ocean waves to our own shores, and in our evening papers we read the account. By means of the telephone, the sound of the human voice can be heard a thousand miles away. The telautograph reproduces the very movements of the human hand hundreds of miles away. The phonograph stores up the very accents of the human voice to reproduce them if needs be in years to come. The kinoscope reproduces the very actions and movements of the human body. The helioscope manipulates the rays of the sun and the waves of ether in such manner that signals are flashed from mountain peak to mountain peak and intelligence instantly transmitted from stations hundreds of miles apart. With the telescope and the spectroscopy, man has opened up the new astronomy. He has delved into the bosom of the earth, and there in the rocks read the history of the world long before the advent of man.

But aside from these things we are surrounded by marvels, which, being a part of our every day life, we do not appreciate. The trees of the forest, the plants which ornament the earth, the beasts of the field, the birds of the air,

the insects under our feet, the animals and plants of our rivers and sea; these are all wonderful in themselves, each having a place to fill in the make-up of the universe, each endowed with life and each reproducing after its kind.

When we think of all these things can we say that a knowledge of science is not important? But you say other things are more important. Life is too short to occupy much time in such work; that if the pupil wishes to learn about scientific facts let him wait till he gets to the high school.

The first objection that we have to meet is that we do not have time in the grammar school to devote to nature study. Let me venture the statement that there is not a teacher in the grammar grades who can not find time to give direction to work in this line and at the same time not detract in the least from the regular school work; nor is there a set of pupils who are so crowded with their work in the common branches that they have not time to keep their eyes and ears open to their surroundings and whose souls are not ever ready to respond in harmony to the voice of nature.

In these grades a text-book is not necessary. In fact, it would probably do more harm than good. Therefore we would not require at his hands application to any text-book, but allow him the time to study his other lessons from the text. Then the question comes, How shall he prepare these science lessons? There are many spare moments in the life of the child. As he walks to and from school, as he crosses the fields and the brooks, as he strolls through the forest, as he looks up into the heavens or down upon the earth he must be thinking about something. Shall he spend these moments in idle reverie? Shall he build air castles to be destroyed by the gentlest zephyr? Shall his thoughts tend toward the vicious and the degrading?

Or on the other hand shall we point out to him the perfection of Creation? Shall we lead him so that he will find "*A pleasure in the pathless woods, a rapture on the lonely shore?*" Shall we teach him to see the imprint of a Creator's hand on every blade of grass and tiny leaf? Shall we lead him so that when he gazes into the starry firmament he will see the planets as they roll

and the unvarying constellations as they proclaim the seasons?

The years spent in the Grammar Grades are the critical time in the life of the child. This is the transition period from childhood to young manhood and young womanhood. Habits are now forming which will in a short time become a part of the pupil's nature. His mind now begins to pursue lines of thought which will determine his character. How easy then to direct his thinking into proper channels! How easy to instill a taste for knowledge by an appeal to the senses! The acquisition of this knowledge brings to the child a deep-seated pleasure. How surprised is he as he is shown the similarity that exists between all members of the same species! If he has given the subject any thought, he has perhaps imagined that the plants have sprung up in a kind of accidental, or haphazard way; that the insects from some unknown cause appeared in the spring and disappeared in the fall, etc. These things he has taken for granted and they have but little interest for him, but when he begins to find out the causes of these things; that they occur in accordance with fixed laws of nature, his interest is aroused and he desires to know more.

Why is it that so many of our pupils fail to complete the High School Course? We contend that it is not from a lack of time, or desire of the parents that their children leave school so young; but that the fault is to be found in the system of instruction which introduces meaningless classifications of unfamiliar forms.

A small army of pupils may each year be seen in the grammar school looking with longing eyes over into the promised land, the high school. Perhaps the preceding term they sent a class over there, but when those huge Botanies and Zoologies and Natural Philosophies with Latin and Greek words and technical terms—hideous sons of Anak, appeared in colossal form before them, ten-twelfths of them brought back an evil report, saying they could not conquer the land.

Nor can we altogether blame them. We have only to recall our own experience, when we were given Wood's large Botany and told to complete that and four other studies in three months.

It merely becomes a test of memory, and when graduation day with all its attendant glories appears, only Joshua and Caleb are there to enter in.

On the other hand, if the child has, through well directed observation, become familiar with nature—the textbooks in the high school open wider the gates to the avenues of learning, and through association of ideas he makes this knowledge really his own.

The question that next presents itself after considering the importance of the subject, is "*How Shall Science Be Taught in the Grammar School?*" Our idea is that it should be taught by a system of well-directed observation work. In the Revised Course of Study for the common schools of Illinois may be found excellent suggestions accompanied by an outline of the branches of Zoology, Botany and Physics. If the teachers of the State would follow this outline as a guide, it would not be long until practical results in science work would be observed, and enthusiasm would prevail in this often times uninteresting department of our schools.

An eminent authority has said that the sciences should be employed as an instrument for perfecting the reason. Where is there a better field for cultivating this noble faculty than in the realm of science? Let us notice some of the features of the animal kingdom. The severity of our winter season renders some provision necessary for protection to animal life. This opens a wide field of thought. As the pupil begins to think, new fields are constantly opening to him, the migration of birds, hibernation of certain animals, the little eggs that are stored away to be hatched in the spring, the protective resemblance of certain animals, how animals obtain their food—these are all subjects which impress on his mind the grand harmony of nature and will make him wiser and better.

In order that the best results be attained it is absolutely necessary that these lessons be illustrated in the school-room by actual specimens collected by the pupils. The collection of these specimens will create an interest and their thorough examination will add materially to their knowledge. In this connection free-hand drawings by the pupils are very beneficial. These drawings may be made on the blackboard or

paper. It is wonderful to observe the proficiency which pupils will soon acquire along this line if persisted in. Where possible, drawings should be made of all experiments in Physics.

In order that science be taught successfully in the grammar grades a higher standard of qualification on the part of the teacher is required. It is a fact to be deplored that such a small per cent of our teachers are holders of first grade certificates. Even in some of our city and village schools, we see teachers with 2d grade certificates teaching year after year in the 5th, 6th, 7th, and 8th grades. With such a standard as this how can science work be promoted in our schools?

But the grammar grades are not confined to our town and city schools. In our rural districts are young men and young women intelligent, industrious, eager to learn. From these schools are being trained the great majority of our future teachers. How many of the members of this association here to-day can refer their elementary training back to these district schools? In no other field is there greater field for such work than in our country schools. Here surrounded on every hand by the wonders of nature, and with materials for illustration found in every field, forest and roadside, the teacher may direct his pupils along lines of thought that will make them ever wiser and more useful.

Here we are again confronted with the argument that there is no time for any more studies in the country school. Let me say that if the teacher himself understands the subject and is imbued with enthusiasm, he will find a way to impart his knowledge and his enthusiasm to his pupils. As the magnet induces a flow of electricity in the copper wire that is brought near it, so will the "magnetized" teacher induce in the minds and hearts of his pupils the same spirit that permeates his own.

The teacher must not only have the requisite knowledge of the subject, but he must make his instruction systematic. Unless this observation work is systematic, unless typical forms are studied as representatives of certain classes, his work will be almost useless.

The teacher must have clearly in mind the object of his work, which should be three fold; (1) To develop in the pupil the power of accurate, systematic and

independent observation; (2) To help the pupil to acquire the ability to describe clearly and concisely the facts of his observation; (3) To teach the pupil to draw from his observations logical inferences and conclusions, thus leading to independence of thought.

When the teachers of our State have these motives and are possessed of the requisite knowledge of the subject, science in the grammar grades will receive an impetus that will raise our public schools to a higher standard and result in making our future high school graduates more practical and useful young men and young women.

INDIAN CORN.

BY BESSIE L. PUTNAM.

THE germinating seed foretold two facts regarding this most useful of grains, viz: That we might expect from it as a *monocotyledon*, parallel-veined leaves; also that the woody material would not be arranged in a circular layer as in dicotyledons, but in single threads scattered promiscuously throughout the entire mass. (Compare with structure of a bamboo fishing-rod, or stem of a palm-leaf fan.

The root is fibrous, and from the *nodes* (joints) nearest the ground the plant sends out aerial roots which soon seek the soil and act as props to sustain the rapidly growing plant. The larger the stalk the more numerous are these "brace roots." (In sub-tropical climes this formation is frequently observed. It is especially prominent in the mangrove, banyan and sugar cane. Compare the aerial rootlets of poison ivy, trumpet creeper, etc., and their advantages to the plant).

The stems of most grasses (for corn is a grass) are hollow and closed at the joints. The subject of our study, however, presents a solid stalk, or *culm*, as grass stems are called. It is round or *terete*, and deeply grooved on one side, as

a removal of the tightly sheathing leaves will show. It will be noticed, too, that the groove is not continuous, but shifts at each node in accordance with the position of the alternating leaves. Besides determining its contour, this closely fitting envelope has a more important work to perform in bracing and strengthening the stalk.

The panicle in which the stalk terminates, familiarly known as the tassel, is really the staminate flower; for the plant is *monoecious*, bearing both staminate and pistillate blossoms on the same plant. The staminate flowers are produced in pairs, each with three pendulous anthers suspended by thread-like filaments.

The pistillate or fertile flowers issue from an auxiliary branch (we call it a cob) and are arranged in regular rows, eight or more in number, but always an even number, and enclosed in numerous bracts or husks. The pistils are much more prominent than any other part of the fertile flower; in fact they are the only part that is visible; but how many ever thought of corn silk as pistils of innumerable concealed blossoms? Now we see why it is necessary that the silks should be long enough to protrude from the thick coat of husks that protects the ovaries. Also that the relative positions of the two kinds of flowers place them independent of insect fertilization. Who has brushed past a stalk when the pollen was ready to be discharged, and not noticed it falling in showers upon all parts of the plant? The silks were in a position to receive it, and from its power the golden ear is in due time evolved.

Wind doubtless acts as a pollen carrier in partnership with gravitation. And for this reason seeds of different kinds of corn will often "mix" if planted in proximity, though varieties differing in time

of blossoming exhibit no such tendency.

Its history is an ancient one. It has been found in the tombs of the ancient Peruvians, in the ruins of the cliff dwellers and in the mounds of the Mississippi Valley. Though now extensively cultivated in many parts of the world, it is regarded as indigenous solely to the Americas. The fact that it is not found save in cultivation is proof that the natives, centuries ago, recognized its value and were willing to expend manual labor to secure it, while nature adequately supplied their other wants. (Various Uses of Corn).

The mythology of its origin is nicely told in *Hiawatha V*. No stronger plea for it as a national emblem has been made than that of Edna Dean Proctor in her well known poem now set to music.

See page 19.

IS IT A FAD?

BY FRANK O. PAYNE.

IT is often asserted that teachers are more given to fads than any other class of people. In proof whereof, it is said that the spelling book went out, so did mental arithmetic; so did grammar, to make way for phonics, language lessons, and the like; that the beautiful copy-books of to-day are disappearing before the abomination—vertical penmanship. There was doubtless a foundation in truth for these innovations, and they have certainly had much to do with moulding the educational thought of the present day.

But we who, as children, were the victims of phonic fads, have grown up very poor spellers; and we to whom mental arithmetic was denied, find ourselves woefully slow in thinking out solutions of problems. Though the writer is a firm believer in language lessons, yet he is also a lover of grammar (tech-

nical, if you please). This may be rank heresy, but that the future alone can determine. There is music in my ears in the sound of rapid, active, energetic *parsing*, or the logical analysis of a problem from statement to conclusion.

It is therefore with delight that I see the spelling book coming back to its place among school-books. It also affords pleasure to see in recent catalogues of leading publishers numerous texts on mental arithmetic.

The fact is, that these studies would never have gone out, had they not been made into hobbies and ridden to death. They will not be admitted again to the thrones they once occupied, but they will assume their proper place, for they *have* a proper place in the schools.

But how about "Nature Study?" Is this new department a fad? Will it, like the fads of the past, create a stir and then go the way of all fads? There may be danger of this.

The superficial teacher will be taken with the showy side of this subject. School exhibits will be crowded with collections of all manner of things. Nature-study will be interwoven into commencement essays. Language and number work will be deeply dyed with it.

I say there may be danger of this. By and by comes a reaction. Out goes everything connected with it. But to the thinking teacher nature study is hailed with joy. Not as a fad, but as one more means by which to interest the child; as a never-failing source for lessons in morals, and as a basis for all manner of lessons in other subjects of school work.

One of the Chicago papers has recently cried out against the introduction of nature study in some such words as these: "Nature study is the latest idiocy of the school cranks, and the greatest

lunacy of modern times." It may be well to look over the works of men whom we are accustomed to regard as leaders of pedagogical thought, and see what is their opinion on this subject.

Of one thing we may be very certain, that he who thinks that the study of nature is *new*, is greatly deceived. Few censors of educational methods will criticise the pedagogy of Comenius. Here is what he said of teaching in general: "Knowledge of *things* close at hand should be acquired first, then that of those farther off." What is the *Orbis Pictus*, if it be not an attempt to introduce the child to an acquaintance with nature?

Huxley says: "The first teaching a child wants is an *object lesson* of one sort or another."

Says Alexander Bain: "Worth belongs to *any subject* if it convey methods that are useful far beyond itself." Surely the opinion of such a man as Bain is worth consideration. Is not a subject which develops the senses, stimulates thought, cultivates the heart, and leads the child towards a love for the Creator of all things, a subject of such a nature?

Perhaps the opinion of Agassiz is not out of place here. "The difficult art of thinking, comparing, and discriminating, can be more readily acquired by examining natural objects for ourselves, than in any other way."

"Children should be accustomed to examine, analyze, and inspect every object of interest around them, flowers and minerals by the wayside, animals of the field, warblers of the forest, etc. All present excellent subjects for exercising the faculties."—*Tate*.

Cultivate habits of *observation, inquiry, comparison, and steady perseverance*.—*Landon*.

"You can make the teaching of physical science as fruitful, as thoroughly disciplinary, for all the

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higher purposes contemplated in a liberal education, as the teaching of Greek or geometry, if you will only first recognize the possibility of making it so."—*Fitch*.

"Is it not," says Herbert Spencer, "an absurd and almost sacrilegious belief, that the more a man studies nature, the less he reveres it?"

Quotations might be given indefinitely from Quick, Rousseau, Locke, Tate, Payne, and others. Pestalozzi covered the whole ground when he said: "Observation is the absolute basis of all knowledge. The *first* object of education must be to lead a child to observe with accuracy, and *second*, to express with correctness the result of his observation."

In conclusion, any subject may be made a fad, but when we consider how the greatest of all Teachers resorted to nature for illustrations of the truths He taught, we can hardly call nature study an innovation. Should we hesitate to employ His methods of instruction, or cry out against a study of the things which He thought not unworthy to symbolize things divine?—*Ohio Ed. Monthly*.

See the adv't. entitled Pathfinder, p. 4.



ARITHMETIC.

1. Find the cost of a stair carpet for a flight of 18 steps, $7\frac{1}{2}$ inches rise and 10 inches deep, at 68 cents a yard, the 18 steps to include 10 inches floor space at the top of the stairs.
2. Reduce .0018 $\frac{3}{4}$ (a) to the form of per cent.; (b) to a common fraction in its lowest terms; (c) to a fraction whose denominator is 8,000.
3. Multiply 5 rd. 4 yd. 2 ft. 4 in. by 9.
4. 9 h. 6 min. 8 sec. is what part of 13 h. 39 min. 12 sec.?
5. A merchant sold a quantity of goods for \$93.15, and thereby lost $\frac{1}{4}$ of what the goods cost him. Find their cost.
6. If in building a railroad, rails weighing 80 pounds to the yard are used, how many tons of rails will be required to build a mile of single-track road?
7. The perimeter (the sum of the sides) of triangle is 220 yards, and the sides are in the ratio of 4, 7, and 9. Required the length of the longest side.
8. Find the proceeds of a 3-months note for \$225, made and discounted today, at a Rochester, N. Y. bank, at 5 per cent. per annum.
9. Find the exact interest on \$3,650 from May 3, 1895, to June 5, 1895, at 5 per cent. per annum.
10. Required the cost to the purchaser of an article listed at \$54, but sold subject to trade discounts of 25 per cent., 16 $\frac{2}{3}$ per cent., and 5 per cent.

Geography.

1. What is the latitude of (a) the Artic Circle; (b) the Tropic Capricorn?
2. If a man travels westward across the continent, how will the time indicated by his watch compare with local time wherever he may be? What does this difference prove with reference to the movement of the earth?
3. The Amazon is a great navigable river. Why have no large cities been built along its banks?
4. What disastrous effects often attend the complete removal of forests from large areas?

5. Mention two natural causes that have contributed to the growth of (a) Rochester; (b) San Francisco.

6. What large river flows across (a) Austria; (b) Alaska; (c) Massachusetts?

7. In what country and on what water is each of the following cities: (a) Montreal; (b) Buenos Ayres; (c) Sidney; (d) Calcutta; (e) Honolulu?

8. Mention two of the most valuable mineral products of (a) the Appalachian mountain region; (b) the Rocky mountain region.

9. Arrange the following cities of New York in the order of their elevation, beginning with the highest: Kingston, Utica, Albany, Cohoes, Schenectady.

10. (a) Locate the Bermuda Islands; (b) state to what country they belong; (c) mention one of their principal exports.

American History.

1. (a) What invention, shortly preceding the voyages of Columbus, made the sailing of the open sea more practicable? (b) About how long was Columbus in making his first voyage? (c) About what time is required for crossing the Atlantic by steamer?

2. From what other colony did the first English settlers (a) of Rhode Island come; (b) of Connecticut; (c) of North Carolina?

3. *a*, By what nation was the Champlain valley first occupied? *b*, Locate one of the forts built to defend that valley.

4. *a*, What was Washington's first successful operation against the British, after his appointment as commander of the American army? *b*, Mention one of the principal battles in which his army suffered defeat.

5. For what particular event or circumstance during the revolution was each of the following places on the Hudson notable: *a* Stony Point; *b* Bemis Heights; *c*, Newburg? Select for answer any two of the three mentioned places.

6. The American songs, *a*, the Star Spangled Banner, by Francis S. Key, and *b*, the Battle Hymn of the Republic, by Julia Ward Howe, are each commemorative of one of our wars. Mention the war in each case.

7. *a*, Locate the Gadsden Purchase, and *b*, account for the name given to that tract.

8. What was John Brown's object in seizing Harper's Ferry? *b*, What circumstance made that place favorable to his purpose?

9. Locate *a*, Petersburg, and *b*, Island No. 10; and *c*, state in the case of either one of these places why it was a strategic point in the civil war.

10. Arrange in the order of time the first practical use of telephones, railroads, steamboats, and the telegraph.

Grammar.

1. The reading class now seated on the
2. form in front of the schoolmaster's
3. desk, consisted of the three most
4. backward pupils. Adam would have
5. known it, only by seeing Bartle Mas-
6. sey's face as he looked over his
7. spectacles which he had shifted to
8. the bridge of his nose, not requiring
9. them for present purposes. The face
10. wore its mildest expression; the
11. grizzled, bushy eyebrows had taken
12. their more acute angle of compas-
13. sionate kindness, and the mouth,
14. habitually compressed with a pout of
15. the lower lip, was relaxed so as to
16. be able to speak a hopeful word or
17. syllable in a moment.—GEO. ELIOT.

1. Classify the following clauses: *a*, class consisted (lines 1 and 3); *b* Adam would have known (lines 4,5) *c* as he looked (line 6); *d* he had shifted (line 7); *e* mouth was relaxed (lines 13, 15.)

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2. Give *a* three modifiers of *seated* (line 1); *b* two modifiers of *compressed* (line 14).

3. Classify as parts of speech: *a* *consisted* (line 3); *b* *most* (line 3); *c* *over* (line 6); *d* *their* (line 12) *e* *so* (line 15).

4. *a* Select two adjectives in the comparative degree; *b* two in the superlative degree; *c* a numeral adjective.

5. *a* Select a participle modifying a noun. *b* Select a participle used as the object of a preposition.

6. Give the mode and tense of each of the following verbs: *a*, *consisted* (line 3) *b* *would have known* (lines 4, 5); *c* *had shifted* (line 7); *d* *was relaxed* (line 15); *e* *to be* (lines 15, 16).

7. Give the syntax of *a*, *face* (line 6); *b* *this* (line 6); *c* *mouth* (line 13).

8. Define *a* relative pronoun; *b* regular verb.

9. Decline *a*, *I*; *b*, *lady*.

10. The object of a transitive verb may be *a*, noun; *b*, a pronoun; *c*, a clause. Give an example of each.

Methods and School Economy.

1. What is the first step in the cultivation of color sense?

2. What is the object of the study of grammar?

3. Give a plan of teaching the noun.

4. In lesson on the comparison of objects what is incidentally to be accomplished?

5. Should grammar at first be taught orally or from a text-book? Give reason for your answer.

6. What should be the primary object of teaching arithmetic?

7. Multiplying the denominator or dividing the numerator decreases the value of the fraction. How may this be illustrated?

8. Name serious objections to requiring pupils to write many words or sentences as a penalty of violating some rule of conduct.

9. Children should have instruction in what general relations preparatory to their study of geography?

10. State the underlying principles that should govern the administering of punishment.

Current Topics.

1. What changes were made in President Cleveland's cabinet in June?

2. What Industrial Exposition is to be held in this country this fall and winter?

3. Name an important educational law which was enacted by the last legislature.

4. What great scientist recently died?

5. The English Parliament was recently dissolved. At the time of such dissolution, what party was in power?

6. In the recent English elections, what party was successful?

7. What island on the American Continent is in a state of insurrection?

8. What object is sought by the insurgents?

9. State briefly the facts of the sinking of the Italian steamship "Maria P."

10. What great commercial canal was opened in Europe in June?

Civil Government.

1. State two advantages of a republican form of government over that of a monarchy.

2. What is the connecting bond or unit between *a*, the village and county governments; *b*, the town and State governments?

3. *a*, What is meant by a blanket ballot? *b*, What is a paster ballot?

4. Congress shall have power to raise and support an army. Why was this power made a part of the Constitution?

5. *a*, Define taxes. *b*, State two objects for which taxes are rightfully imposed upon a community.

6. Name one duty of a Surrogate.

7. Deeds of real estate and mortgages on the same should be recorded. *a*, Why? *b*, Where?

8. Under the supervision of which of the cabinet officers does the management of each of the following come: *a*, foreign affairs; *b*, Indian affairs?

9. Rules of naturalization are uniform throughout the United States. How is this uniformity secured?

10. Name two town officers and state one duty of each.

Composition.

Write a composition on one of the following subjects:

1. A country road.

2. A surprise party.

3. The force of habit.

4. Benefits derived from reading good books.

Credits will be given on the merits of composition with particular reference to three points.

1. The matter *i. e.*, the thoughts expressed. (25)

2. The correctness and propriety of the language used. (25)

3. The orthography, punctuation, division into paragraphs, use of capitals, and general appearance. (25)

Physiology and Hygiene.

1. Why has the shoulder joint more freedom of movement than the hip joint?

2. *a*, Name the muscle used chiefly in bending the arm. *b*, What bones of the arm are used by this muscle?

3. What are *a*, the bronchial tubes; *b*, the villi?

4. What is the drum of the ear?

5. Why do those exercising much usually require more food than those exercising little?

6. Upon bread, insalivation produces a mechanical and a chemical effect; upon meat it produces only a chemical effect. Explain

7. Where is *a*, the chyme formed; *b*, the chyle?

8. What is the function of *a*, the pulmonary artery; *b*, the portal vein?

9. Why should a person abstain from the free use of ice water at meals?

10. Why is the smoking of cigarettes more injurious than the use of tobacco in other forms?

Orthography.

1. remittent,

2. primeval,

3. environ,

4. bequeathe,

5. tenable,

6. emphatic,

7. occurrence,

8. remembrance,

9. attribute,

10. diagonal,

11. captivity,

12. invincible,

13. docility,

14. librarian,

15. obedience,

16. tributary,

17. numerical,

18. consecutive,

19. potential,

20. restitution,

21. expulsion,

22. proximity,

23. enormous,

24. architect,

25. Adirondack,

26. gracious,

27. concede,

28. conscious,

29. ambulance,

30. electrical,

31. ambiguous,

32. credulous,

33. concussion,

34. appreciate,

35. discourse,

36. gratuity,

37. copious,

38. condolence,

39. sympathize,

40. amicable,

41. pitiable,

42. classical,

43. maintenance,

44. emphasis,

45. committee,

46. prolific,

47. admonition,

48. contagious,

49. triumph,

50. weighty.

ANSWERS.

Arithmetic.

1. \$5.95.
2. a , $1\frac{2}{3}$ per cent. b , $\frac{3}{1000}$. c , $\frac{15}{1000}$.
3. 52 rd. 4yd. 1 ft. 6 in.
4. $\frac{3}{4}$.
5. \$130.41.
6. $140\frac{1}{2}$ tons.
7. 99 yards.
8. \$222.19.
9. \$16.50.
10. \$32 06.

Geography.

1. a , $66\frac{1}{2}^\circ$ north latitude. b , $23\frac{1}{2}^\circ$ south latitude.
2. a , It will be faster than the local time. b , That the earth rotates on its axis from west to east.
3. The Amazon is near the equator and its climate is hot, enervating, and unhealthful.
4. Floods and drouth.
5. a , The water power of the Genesee river. Nearness to Lake Ontario, and to the rich and productive territory of the Genesee valley. b , A fine harbor, proximity of gold fields, and fertile agricultural territory. Mild climate.
6. a , The Danube. b , The Yukon. c , The Connecticut.
7. a , In Canada, on the St. Lawrence. b , In Argentine Republic, on the La Plata. c , In New South Wales, on the Pacific. d , In India, near the mouth of the Hoogly river. e , In Hawaii, on the Pacific.
8. a , Coal, iron, petroleum, limestone. b , Gold, silver and copper.
9. Utica, Schenectady, Cohoes, Albany, Kingston.
10. a , In the Atlantic, east of the southern part of the United States. b , Great Britain. c , Potatoes, onions, flowers fruit.

American History.

1. a , The mariners' compass, (also the astrolabe). b , About ten weeks. c , About a week.
2. a , Massachusetts. b , Massachusetts. c , Virginia.
3. a , France. b , At Crown Point. At the head of Lake George.
4. a , The fortification of Dorchester Heights and the consequent expulsion of the British from Boston. b , The battle of Long Island, Brandywine, or Germantown.

5. a , Its capture by Anthony Wayne. b , The battles of Saratoga were fought there. c , Washington's headquarters were there for a time.

6. a , The war of 1812. b , The civil war.

7. a , It lies between Mexico and the territory of the United States obtained from Mexico at the close of the war with that country. b , It was named from General Gadsden, who negotiated the treaty of purchase.

8. a , To incite the slaves to a general uprising. b , The location of a United States arsenal there. (Other correct answers will be accepted.)

9. a , In central Virginia, near Richmond. b , In the lower Mississippi. c , Petersburg was an important defense of Richmond. Island No. 10 helped to command the navigation of the Mississippi river.

10. Steamboats, railroads, telegraph, telephone.

Grammar.

1. a , Principal. b , Principal. c , Adverbial. d , Adjective. e , Principal.

2. a , The adverb *now*, and the adverbial phrases *on form*, *in front*. b , the adverb *habitually*, and the adverbial phrase *with point*.

3. a , Verb. b , Adverb. c , Preposition. d , Pronoun. e , Adverb.

4. a , *More accurate, lower*. b , *Most backward, mildest*. c , *Three*.

5. a , *Seated, requiring, compressed*. b , *Seeing*.

6. a , Indicative, past. b , Potential, past perfect. c , Indicative, past perfect. d , Indicative, past. e , Infinitive, present.

7. a , Object of *seeing*, objective case. b , Possessive case, modifying *spectacles*. c , Subject of *was relaxed*, nominative case.

8. a , A pronoun that stands in close relation to its antecedent and connects to it a subordinate clause is a personal pronoun. b , A verb whose past tense of the indicative mode and its past participle are formed by adding *ed* to the present tense of the indicative mode, is a regular verb.

9. *Singular. Plural. Singular. Plural.*
Nom I, we, lady, ladies,
Poss. my (mine) our lady's ladies',
Obj. me, us lady, ladies.
 10. (*a* and *b*) *Ex.* "Cassius, be content;

Speak your griefs softly: I do know you well." SHAKESPEARE.

(*c*) "You say you are a better soldier"

Methods and School Economy.

1. To ascertain what the child already knows concerning color.

2. To learn the science of language and the art of correct expression.

3. Answers will differ.

4. To train the children to observe correctly. To teach them to appreciate similarities and differences in objects.

5. Answers will differ.

6. To make pupils skillful in computation.

7. Answers will differ.

8. It takes too much time. In haste to accomplish the task they acquire bad habits of penmanship. It makes them nervous. By a law of the mind, the punishment is associated not with the offense, but with the task thus increasing the pupil's dislike for study.

9. The relation, of size, form and space.

10. It should be certain; It should be just; it should be such as would naturally follow the offense.

Current Topics.

1. Attorney-General Olney was appointed Secretary of State, and Judson Harmon, of Cincinnati, was chosen Attorney-General.

2. The Cotton States and International Exposition to be held at Atlanta, Georgia.

3. Answers will differ.

4. Thomas Henry Huxley.

5. Liberal Party.

6. Conservative Party.

7. Cuba.

8. Their independence from Spain.

9. A collision occurred between the Italian Steamship "Maria P." and the "Ortigia" in Gulf of Genoa, July 12. The former vessel sank in three minutes and one hundred and forty-seven persons were drowned.

10. The Kiel Canal.

Civil Government.

1. Answers will differ.

2. a , The town. b , The country.

3. a , A single ballot containing the names of all the parties Against the name of each candidate is designated the party to which he belongs. b , A ballot mutilated upon the back, and containing the names of party candi-

dates and the office for which each is a candidate.

4. That there might be no question of authority in times of necessity for an army.

5. *a*, Money raised by levy upon the person or property of an individual for public purposes. *b*, *Ex.* Keeping roads in repair, support of schools.

6. *Ex.* to take proof of wills. To grant letters testamentary or administrative. To attend to the settlement of the estates of the deceased persons.

7. That they may be matters of publicity, and to prevent fraud. *b*, In the office of the county clerk.

8. *a*, Secretary of State. *b*, Secretary of the Interior.

9. Congress makes the rules for the whole country.

10. Answers will differ.

Physiology and Hygiene.

1. Because the socket of the shoulder joint is not so deep as that of the hip joint.

2. *a*, The biceps muscle. *b*, The ulna and the radius.

3. *a*, They are air passages branching from the bronchi and ramifying through the lungs. *b*, They are hair-like projections upon the mucous membrane of the intestines.

4. It is the middle ear, beginning with the tympanum and extending to the inner ear.

5. Much exercise causes a great waste of tissue, and the need of corresponding repair. Hence the necessity of more food to a person taking much exercise.

6. Bread contains much starch, meat contains none. Insalivation dissolves the bread and changes starch into sugar; but it simply aids in dissolving the meat.

7. *a*, In the stomach. *b*, In the intestines.

8. *a*, To carry the blood from the heart to the lungs. *b*, To carry nourishment absorbed from the stomach and intestines, to the liver.

9. Ice water chills the stomach, reducing the temperature below that which is required for the digestion of food.

10. Because the smoke of the paper is itself harmful, and in the manufacture of cigarettes both paper and tobacco are often treated with noxious drugs.

A DOG THAT COMPELLED OBEDIENCE.

BY THE AUTHOR OF "PRESTON PAPERS."

"COME, Chris, get on your hat and go to the store for me. I want to do some baking and the soda and sugar are almost gone," and Mrs. Weiss went into the kitchen to finish washing the big pile of shining milk pans.

"O pshaw! It's too hot," whined Chris.

"Is it too hot to go swimming?" inquired Mrs. Weiss, pleasantly.

"There ain't no boys to go swimming," snarled Chris, alike regardless of grammar and of his mother's request as he darted out of the door and down through the orchard in the direction of the river, which offered unlimited opportunities for "the boys," acting sometimes as swimming-hole, sometimes as a ferry leading to the village on the other side, and at other times as fishing ground, boating or skating, according to time of year.

Mrs. Weiss looked after his retreating form with a sigh. She knew it was at least partly her fault that Chris was willful and even disobedient, for although she was one of the very kindest mothers she realized that she lacked the firmness of character and decision of manner that is needed in those who train children during the character-building period. She *sighed*, but after one feeble "Chris, come back!" she made no further effort to get him back.

Not so with Bluff, the dog, who was tied in the woodshed. The door stood open and Bluff had heard every word of the conversation, from Mrs. Weiss's request so promptly refused, to her feeble entreaty as Chris disappeared; and Bluff had barked a short accompaniment in sharp, quick dog tones, all through the talk; but nobody paid any attention to him, and when Chris did not come back Bluff began tearing at his rope, biting and pulling to get loose. This was soon accomplished and Bluff started off after his young master, with an evident intent to compel him to obey the precept of the Fifth Commandment. He caught Chris just as he was going down the steep path that led to the boat house, and had made his way so softly that Chris did not hear his approach. Bluff caught him by the seat of his trousers and in

an instant had turned him back toward home, nor did he let the boy go until brought into his mother's presence; and by this time Chris was sufficiently ashamed, to do as his mother had requested, without further parley or objection.

Was Bluff conscious of the nature of the dialogue? Do dogs reason? Are they better logicians than some boys?

NOTE.—Use the above story: 1, to teach (*a*) obedience; (*b*) helpfulness; (*c*) faithfulness to duty and friendship.

2. Make it the foundation of a lesson in paraphrasing.

3. Have the pupils select the *name* words, *action* words, *quality* words.

4. Let them spell:

your	swimming	orchard
baking	inquired	offered
almost	snarled	sometimes
kitchen	grammar	opportunities
pshaw	through	village
fault	sigh	which
character	tied	entreaty.

5. Ask them: Why should Chris be commenced with a capital letter? Mrs? Bluff? The first word of the story? Of what is Mrs. the abbreviation? What is the meaning of *abbreviation*?

THE GOLDEN CORN.

BY EDNA DEAN PROCTOR.

"The rose may bloom for England,
The lily for France unfold;
Ireland may honor the shamrock,
Scotland her thistle bold;
But the shield of the great republic,
The glory of the West,
Shall bear a stalk of the tasseled corn,
Of all our wealth the best.
The arbutus and the golden rod
The heart of the North may cheer,
And the Mountain laurel for Maryland
Its royal clusters rear;
And Jasmine and magnolia
The crest of the South adorn,
But the wide republic's emblem
Is the bounteous, golden corn!"

Yellowstone National Park. THE WONDERLAND OF AMERICA.

Reached by the "Burlington Route." By application to the undersigned a beautifully illustrated pamphlet descriptive of the Park, will be sent free to any address. Also send for descriptive pamphlets of our Personally Conducted Summer Tours to Colorado and Yellowstone Park. D. O. IVES, Gen. Pass. Agt. "Burlington Route," St. Louis, Mo.



THE BOYS OF 'NINETY-FIVE.

Was there ever a boy in the country
wide,
Whose heart has not glowed with an
honest pride,
As the Stars and Stripes in the breeze
he spied?

Is there one in all our fair land to-
day
But is glad that he lives neath Free-
dom's sway,
And who loves our land, and his life
would pay

If the word should come, as we're sit-
ting here,
That the land we love had cause to
fear
Lest her pride, and the Stars and
Stripes, so dear,

Should be dragged in the dust by a rebel
band?
Who would not be first to lend a hand,
To preserve the name of our loved free
land?

The boys of 'Seventy-six we praise,
Who gave their lives our flag to raise.
Wherever we're known in the coming
days

The fame of the boys of 'Sixty-five
Who so gallantly shattered the rebel
hive,
By tongue and pen shall be kept alive

Is there nothing for us to do or to dare,
That our land may be ever as free and
fair?

Can we never a badge of glory wear?

Boys, our land is in greater danger to-
day
Than it could be under the rebel's
sway.

Many foes are bearing the laurels away
That our fathers so bravely strove to
win.

Now is the time to prove that we are
akin

To the brave and true! From the stain
of sin

OUR WASHINGTON.

1. We sing the name of him we love, So proud-ly wreath'd in sto-ry;
2. A-round our fire-sides warm and bright, His no-ble deeds so thrill-ing
3. The pa-triot fires with-in us burn, To hear that proud name spo-ken

The fa-ther of Co-lum-bi-a, And of Co-lum-bia's glo-ry.
We read with won-der and delight, Our hearts with rap-ture fill-ing.
Co-lum-bi-a's own Washing-ton, Of lib-er-ty the to-ken.

CHORUS.

Our Wash-ing-ton, A no-ble pa-tri-ot and true, Of heart so pure and

tender, Of lib-er-ty defend-er, We love him, We love him, our Washing-ton.

From "Morning Bells," the day singing book, by permission of the publisher, W. W. White
Co., Toledo, Ohio.

We must keep us free. We must be
strong
If we'd free our land from the chains of
wrong.

Our land needs MEN! Must she wait for,
long?

—Evelyn E. Parks, in Educational Ga-
zette.

THE END OF SUMMER.

The birds laughed long and loud to-
gether

When fashion's followers sped away.
At the first cool breath of autumn
weather,

Why, this is the time, cry the birds
to stay;

MY NATIVE LAND.

FOLKS SONG.

W. A. O. W. A. O.

1. A - mer - i - ca, home of the free, Na - tive land, my na - tive land;
 2. Of thee full many a tale is told, Na - tive land, my na - tive land;
 3. No des - pot's foot shall tread thy shore, Na - tive land, my na - tive land;

A - gain I raise my voice for thee, Na - tive land, my na - tive land;
 How free-men fought in days of old, Na - tive land, my na - tive land;
 Thou shalt be free for - ev - er - more, Na - tive land, my na - tive land;

To sing thy praise in lof - ty song, Can on - ly to thy sons be - long,
 Thy sons are no - ble, true and strong, To guard the right a - gainst the wrong,
 For thee thy sons would free - ly die, To keep thy star - ry flag on high,

We shout for thee in chor - us strong, Na - tive land, my na - tive land.
 And bear the star - ry flag a - long, Na - tive land, my na - tive land.
 The em - blem of our lib - er - ty, Na - tive land, my na - tive land.

In all the blossoms that decked her
 sod,
 So royal-hued as her latest comer,
 The purple chum of the golden rod.

Some chill gray dawn you note with
 grieving.

That the being of autumn is on his
 way,

You see with a sorrowful, slow believ -
 ing

How the wanton woods have gone
 astray;

They wear the stain of bold caresses,
 Of riotous revels with old King
 Frost;

They dazzle all eyes with their gorgeous
 dresses!

Nor care that their young green leaves
 are lost.

A wet wind blows from the east one
 morning,

The wood's gay garments look drag -
 gled out,

You hear a sound and your heart takes
 warning—

The birds are planning their winter
 route;

They wheel and settle, and scold and
 wrangle,

Their tempers are ruffled, their voices
 loud;

Then whirl—and away in a feathered
 tangle

To fade in the south like a passing
 cloud.

—Selected.

PROF. G. D. Free, A. M., of
 Clarksville, Tenn., must be a very
 busy man. Besides being dealer
 in all kinds of school supplies—
 manager of "The Teachers' Bu -
 reau," author of "History of
 Tennessee," "A Popular Geogra -
 phy," "The Principles of Civil
 Government in the United States
 and State of Tennessee," "Map of
 Kentucky and Tennessee," etc., he
 is now editor and proprietor of
The Public Schools, the leading
 educational monthly of Tennessee.
 It is 36 pages each month and only
 50 cents per year. You may have
 it and the AMERICAN JOURNAL OF
 EDUCATION both one year for one
 dollar.

When the deep calm sea and the deep
 sky over

But look their love through sunkissed
 space,

As a blue-eyed babe and its blue-eyed
 mother

Might each gaze into the other's face.

The sly little sumach in lonely places,
 Bowed all summer in dust and heat,
 Like clean-clad children with rain -
 washed faces,

Are dressed in scarlet from head to
 feet;

And never a flower had the boastful
 summer,

W. Whitney Co., Toledo, Ohio.



TREES.

I.

The trees need water.
The trees need soil.
The trees need heat.
The trees need light.
The sun gives heat and light.

II.

The trees are pretty.
They give shade.
They give fruit.
They give wood.

III.

We use the wood for fuel.
We use the wood for furniture.
We use the wood for houses.
We use the wood for cars.
We use the wood for ships.

IV.

We find coons on the trees.
We find ants on the trees.
We find beetles on the trees.
We find spiders on the trees.
We find lady-bugs on the trees.
We find birds' nests on the trees.
We find worms' nests on the trees.

We find earthworms under the trees.

—C. C. N. S. Envelope.

SPELLING—SECOND MONTH.

1. Sounds represented by *e*, with diacritical marks.
2. List of names of birds of this locality. Noted birds of other localities.
3. Study *hall*, *haul*; *jam*, *jamb*; *need*, *knead*; *night*, *knight*, etc.
5. Study words containing the prefix *in*.

The following list of birds was prepared by a pupil:

calipe	daw
caracaro	dove
bee-eater	catbird
blackbird	crow
blue jay	chaffinch
bobolink	chickadee
brown thrush	chippy
bobwhite	cedar bird
bullfinch	cow bird
butcherbird	curlew
blue bird	crane
lark	oriole
lapwing	owl
linnett	ostrich
meadow lark	pigeon
martin	peacock
mocking bird	pheasant
nightingale	plover
prairie chicken	pewee
snipe	snakebird
song sparrow	sparrow
sparrow-hawk	starling
swan	swordbill
teal	tailor bird
turtle dove	whippoorwill
wild goose	woodcock
wood duck	wren
	yellow hammer.

In connection with the study of birds, do everything possible to get the boys interested in the song birds. The deadly air gun and the almost as destructive "flip" are fast driving them from us.

Read the following from the statutes of Illinois: "Notice is hereby given that it is unlawful, according to the statutes of the state of Illinois, to kill or attempt to kill, at any time, in this state, the following birds: Robin, blue bird, swallow, martin, mosquito hawk, whippoorwill, cuckoo, woodpecker, catbird, brown thrush, red bird, hanging bird, buzzard, wren, hummingbird, dove, goldfinch, mocking bird, blue jay, yellow bird, oriole, or bobolink, or to rob or destroy the nests of the same, and shall upon conviction be fined \$5 for each and every bird."

NUMBER WORK IN GEOGRAPHY FOR THE SIXTH GRADE.

	EUROPE. AREA. Square Miles.	POPULATION.
Germany.....	311,000	49,400,000
Russia.....	2,115,000	96,000,000
France.....	205,900	38,000,000
British Isles.....	121,400	38,100,000
Denmark.....	15,400	2,185,000
Scandinavia.....	300,000	6,700,000
Belgium.....	11,370	6,100,000
Holland.....	12,740	4,550,000
Switzerland.....	15,960	2,918,000
Austria-Hungary.....	241,000	41,170,000
Spain.....	196,000	17,260,000
Portugal.....	34,500	5,000,000
Italy.....	110,620	30,947,000
Balkan Peninsula.....	226,400	19,000,000

Find the area and population of Europe.

Find the average density of population in Europe; in each European country.

Find the difference between the average density of population in Europe and the average density of population in the different countries of Europe.

Arrange the countries of Europe in order of—area; population; average density of population.

Questions like the following may be asked (answer in decimals):

The area of Russia equals what part of the area of Europe?

The area of Belgium equals what part of the area of Russia? of Europe?

The population of Russia equals what part of the population of Europe?

The population of Belgium equals what part of the population of Russia, etc.

What conditions determine the density of population in a country? (Structure, climate, position, social conditions, etc.)

Let the children account for the differences in average density of population among the different countries of Europe. Why has Belgium the greatest density of population? Why is Switzerland able to support a comparatively large population? etc.

These questions will lead the child to a close study of the geography and history of Europe.

The position of the British Isles, the severe climate and the social conditions of Russia, the waste of Spain and Scandinavia, etc., will by these questions get a definite meaning to the child.

These questions should be given after a careful study of the physical geography of Europe and will serve as an introduction to its political geography.

The area of all the land is 52,315,800 square miles.

The area of the United States is 3,605,000.

The area of Illinois is 56,650.

The population of all the land is 1,479,729,000.

The population of the United States is 64,000,000.

The population of Illinois is 3,826,000.

Find the average density of population for all the land; for the United States; for Illinois.

The population of Europe equals what part of the population of all the land?

The area of Europe equals what part of the area of all the land?

Find the difference in average density of population between Europe and all other land.

Europe and the United States.
Europe and Illinois.

Let the children account for the great density of population of Europe, as compared with that of the entire land, stating all the favorable conditions of Europe, as to structure, climate, position, social conditions, etc.

In comparing the density of population of Europe with that of the United States and Illinois, the history of the recent settlement of America has to be considered.

Discuss with the children the probable increase or decrease of population in Europe and the United States.—*George Thorne-Thomson*.—*C. C. N. S. Envelope*.

PHYSIOLOGY—FIFTH YEAR.

THE BONES.

1. Composition and structure.
 2. Number, purpose.
 3. Bones of skull, trunk and limbs.
 4. Injury to bones.
 1. By sitting or standing in wrong positions.
 2. By bad air, poor or insufficient food and lack of sunlight.
 3. By alcohol and tobacco.
- After a brisk report of the observations of the children concerning objects which have a framework, and a little review of the uses of bones, proceed with the advanced lesson.

COMPOSITION OF BONES.

Let one boy and one girl go to the board, one to record the observations of the boys, the other those of the girls. Any little device of this kind adds zest to the recitation. Then ask the children who have performed experiments upon bones to state what they did and its effect—the boy and girl writing upon the board the statements made, thus:

"Fred burned a bone. It turned white and was easily crumbled in the fingers. It was all lime."

"Flora boiled a bone. The juices and marrow were gone from it, but it would neither bend nor crumble. There were very tiny little holes in the outside of the bone for the blood vessels to go through, which she points out with a needle."

"Jack found an old bone on the ground. It was very white, but he put it in acid, and proved that the gristle stays in bones for years."

"The teacher soaked a fresh bone in weak acid, which dissolved all the lime and left the bone so limber that she could tie it in a knot."

The teacher then calls upon some member of the class to write upon the

board the review statements brought freshly to mind by this lesson.

BONES ARE MADE OF LIME AND GRISTLE.

"Children's bones bend easily because they have not so much lime in them to make them hard, as the bones of older people have."

"We must sit erect and stand straight, or our bones will harden in a crooked shape and we shall not be straight."

A good method of straightening up the backs of pupils, without the continual harping which always fails of its purpose, is for the teacher to stand before her pupils until there is an expectant pause; then, without a word, let her visibly straighten her own back and shoulders, and the effect upon the room will be magical.

The children will be led to see, by examining the burned bones, that those which contain the most lime are very brittle. Then they may write:

"We must not be careless in letting old people slip and fall, for their bones are brittle and do not knit easily when broken."

Then produce the section of bone which has been sawed, showing the structure of ends and shaft. Having studied in review how food becomes blood and is carried to every part, the class will now be able to get some idea of how the blood in the blood-vessels penetrates and feeds the bones.

NUMBER AND PURPOSE.

In studying the number of the bones, from the text-book and otherwise, let the children count as many as possible, —the bones in the fingers and hand, arm, forearm, ribs, jaw-bones, thigh-bones, etc. It would also be well to have each child give his own reason why there should be so many.

They are now able to state more definitely and to observe more closely the purposes of the bones. Put the question on the board:

WHY DO WE NEED BONES?

Then let the children write the answers on slips of paper, asking each child to write something which he thinks no one else will write. Select a variety of the answers to be read before the class.

Bring out especially the uses of the bones of the skull, trunk and limbs, showing such bones from a sketch put on the board, or from a picture, if nothing better is available.

If possible, illustrate with the breast-bone of a spring chicken, compared with that of a fowl, how bone is shaped in gristle and then gradually hardens to become bone.

The back-bone of a fish strung on a cord, to represent the spinal cord, will give them a fairly good idea of the vertebrae, showing the protection which it gives to the spinal cord.

Compare the size of the bones of the lower limbs with the other bones, and lead the class to tell why they need to be larger and stronger than the rest.

Send all the class to the board, asking them to begin with the head and write the common names of as many bones as they can.

HYGIENE OF THE BONES.

This part of the subject can well be introduced by the teacher's writing on the board the following questions:

Why are children who live in impure air and dark rooms apt to be pale and stunted in growth?

How does poor or insufficient food affect the bones?

From the various answers given by the class the pupils should be able, with suggestions from the teacher, to formulate the following memory points, each of which should be put upon the board by the pupil last able to express it:

Bad air and lack of sunlight make bad blood, and that hurts the growth of bones.

Poor or insufficient food make poor blood, and poor blood will not make good bones.

The pupils having now come to understand that anything which injures the quality of the blood may prevent the best growth of the bones, they should be ready for the last points of the lesson, viz.:

THE EFFECT OF ALCOHOL AND TOBACCO ON THE BONES.

This topic might be taken up by the teacher asking the class what kind of a framework they would need if they wanted to build a large, strong house that might stand for years, and what kind of material they would want put into the framework, and what would happen if the material of that framework were too small or too weak to hold the weight of the building.

Then draw from them the statement that

EVERY FIRM STRUCTURE MUST HAVE A STRONG FRAMEWORK.

The class will readily grasp the application of this truth, and will be easily led to see that without strong, healthy bones no boy can become a tall, straight, strong man.

At this stage of the lesson it will be well to introduce a review of what pupils have learned in lower grades

about the presence of nicotine in all forms of tobacco and the poisonous character of nicotine.

The following review might be put upon the board as memory points, to be copied in pupil's note books or on their tablets:

There is nicotine in all forms of tobacco.

Clear nicotine is a powerful poison.

When tobacco is burned in a pipe, cigar, or cigarette, the nicotine evaporated by the heat becomes part of the smoke, making the smoke poisonous.

To prepare the class for the next question, the teacher might call upon different members to tell, each in his own way, how the air we breathe gets to the bones.

Then the teacher might write upon the board the following question:

If a boy smokes cigarettes, how does the poison nicotine get into his bones?

Let the class freely discuss the question, guiding their thoughts until they can state and put upon the board as memory points the following:

When tobacco is smoked, the poison nicotine is drawn with the smoke into the little air sacs in the smoker's lungs.

There are very many small blood vessels in the walls of the air sacs.

The nicotine passes through the walls of these blood-vessels into the blood.

Then the blood will carry this nicotine to every part of the body, even to the bones, stunting and hindering their growth.

When the teacher is convinced that the class clearly understand these points, the following question might be put on the board by the teacher, to be left until the next day, and each member of the class be asked to write upon paper the answer to be read and discussed the next day:

What may cigarette smoking do for a boy who wants to be a tall, strong man?

From the various answers brought in, the following condensed reply should be drawn out from the class and put upon the board directly under the question as a memory point, and impressed as the climax of the whole lesson:

The poison nicotine from the cigarette, carried by his blood to the boy's bones, may prevent their growth, so that he may not be tall and strong.

The teacher who realizes that cigarette smoking not only stunts the growth of bones but endangers all that is best in the child, will not fail to put forth the heart-felt effort in teaching this lesson that is born of the true teaching instinct that is ever "seeking to save."

ALCOHOL AND BONES.

For lack of space, we only touch upon the effect of alcohol upon the growth of the bones, leaving it to the ingenuity of the teacher to develop the subject, perhaps in a way similar to the above treatment of tobacco, leading to a concise statement of the fact:

Alcoholic drinks injure the bones and may hinder their proper growth.

With this grade it would be well to select one or more of the statements quoted from great authorities on each point, copy them upon the board in a conspicuous place, to remain until the next day. These should be copied in the pupils' note books.

"Never leave any truth on the board until its force has been lost," says a wise teacher.

EFFECTS OF TOBACCO ON GROWTH.

"Smoking prevents the healthy nutrition of the several structures of the body. Hence comes, especially in young persons, an arrest of the growth of the body, low stature, a pallid and sallow hue of the surface, and unhealthy supply of the blood and weak bodily powers."—DR. COPLAND, F. R. S., of England.

"It is painful to contemplate how many promising youths must be stunted in their growth and enfeebled in their minds from the use of tobacco before they arrive at manhood."—PROF. LIGARS of Edinburgh.

"I believe that no one who smokes tobacco before the bodily powers are developed ever makes a strong, vigorous man."—FERGUS FERGUSON, M. D.

"Few things could be more pernicious for boys, growing youths, and persons of unformed constitution than the use of tobacco in any of its forms."—*The Organ of the Tobacco Trade*.

"The effects of tobacco, often severe even upon those who have attained to manhood, are especially severe upon the young who are still in the stage of adolescence. In them it causes impairment of growth, premature manhood, and physical prostration."—B. W. RICHARDSON, M. D., F. R. S.

"In Germany if a boy is caught smoking he is locked up. The government has become anxious about the effect of tobacco on the physique of the soldiers of the future, and in order to rectify in some measure the evil, ordered the police to arrest all boys found smoking in the streets if they are under sixteen years old, and to have them punished by fine and imprisonment."—M. L. HOLBROOK, M. D.—*School Physiology Journal*.

OUTLINE OF NATURE STUDY FOR OCTOBER.

BY WILBUR S. JACKMAN.

ANIMAL LIFE.

Adaptations of life.

General observations on migration of birds. Spinning of cocoons. Preparation of ants' nests for winter observation. Field work for collections.

Study of the tissues directly in connection with the work in gymnastics. Structure and arrangement of muscles. In the upper grades, constituents of muscle and bone. (See Number Work in Nature Study). The mechanism of a joint. Functions of various joints.

PLANT LIFE.

Growth and adaptations of plants.

Field work for purpose of measuring growth of twigs during the past season. Comparison of twigs on same tree—terminal, lateral, and on different sides—and on different trees. (See Number Work in Nature Study). Field work for collection of fruits and seeds in the study of distribution. Modes of distribution of seeds—wind, animals, water, etc. Significance of structure in distribution of seeds.

GEOGRAPHY.

Crop areas.

Location of regions which birds seek in migration.

Location and areas that are being sown or planted with seeds in autumn.

Location of the chief rain areas during the month.

PHYSICS.

Relation of water to soils. Rainfall.

Evaporation and condensation.

Evaporation from soils. Set a tin or iron box full of soil (the weight being known) in the earth, the top being level with the surface. Weigh from time to time and note loss by evaporation. Compute loss per acre; the amount of water evaporated at the same rate from a square mile. Study indoors condition of evaporation. (See Nature Study, pp. 83-85).

CHEMISTRY.

Relative amount of different substances in fruits.

Study of the constituents of fruits. Find the amount of water, dry solid matter, organic matter and ash in the common fruits. This will be done by heating small quantities of each over the Bunsen burner in porcelain crucibles. Specific directions will be given.

METEOROLOGY.

Influences of the weather estimated in the appearance of the landscape and the condition of living things.

Daily record of conditions, temperature, rainfall, air-pressure, cloudiness. (See Nature Study Record). A study of the complete summary of September record. Relation of rainfall to cloudiness. Amount of water received by the tree selected for study during September. Amount of water received by an acre of ground. What regions on the globe have a monthly average rainfall less than that in September? Greater?

ASTRONOMY.

Mutual relations of the earth and sun.

Use of skiameter. (See Nature Study Record).

Compare the areas covered by a given quantity of sunshine in September and October.

Constellations (7 P. M.): North, above Pole-star, Cepheus and Draco. Little Bear west, Great Bear below. N.-E. Perseus, East midway to zenith Andromeda. S.-E. Aries, Pisces, Aquarius, Capricornus. South Sagittarius. S.-W. Scorpio. On the meridian, well up, Cygnus, Aquila. Dolphin east and Lyra west of meridian. Corona and Bootes N.-W. Between Scorpio and Pole-star are Serpentarius and Hercules.

GEOLOGY.

Erosion and sedimentation.

Field work. Wearing and building on the lake shore and along streams. Deposition of material in marshes and sand bars. Compare with sand dunes.

MINERALOGY.

The relation of the different varieties of soils to each other and to the rocks.

Examination of sand with naked eye and with a glass. Study of granite.

STUDY OF FORM.

Significance of form in living things.

Forms of muscles. Forms of fruits. Significance of form in distribution of seeds. Significance in the form of a bird.

NUMBER.

Definite numerical relations.

Relative weight of various bodily tissues. (See Number Work, pp. 73-78). Growth of branches of trees during past year. (See Number Work, pp. 92-99). Ebullition—boiling points in different liquids. (See Number Work, pp. 100-103).

Meteorology for September.—Number Work, pp. 34-42. Comparison of day's length. Number Work, pp. 116-124: Comparison of the various areas sown in grain in the autumn. Classification of minerals. Number Work, pp. 136-143.

MANUAL TRAINING.

Preparation of conditions for study.

1. Boxes for preservation of insects.
2. Apparatus showing expansion of heat in metallic rods.

To be used in November.

DRAWING.

Outline and proportion.

1. Working plans of apparatus. (First week).
2. Structure of seeds. (Second week).
3. Insects studied. (Second week).

PAINTING.

Color relations.

1. October landscape showing October coloring. (Third week).
2. Tree selected for study. (Fourth week).

MODELING.

Spacial relations.

Forms of seeds.

WRITTEN WORK.

Summary of month's work.

Topics suggested: Devices for seed distribution. Preparation of insects for winter.

—C. C. N. S. ENVELOPE.

USE YOUR DICTIONARIES.

What is:

1. The *lily* of a compass?
2. The origin of the word *boycott*?
3. The *shoe* of an anchor?
4. The reason we speak of food as *board*?
5. Used in England. instead of the phrase "*He has the floor*?"
6. The *newel* of a staircase?
7. A *sister-hook*?
8. The *fourchette* of a glove?
9. A railroad *frog*?
10. The *Portland vase*?
11. The origin of the word "*schooner*?"
12. A "*magazine dress*?"
13. The *heel* of a rafter?
14. The *stile* of a door?
15. The *atlas* of your neck?
16. The *thistle crown* of England?
17. Look up *boycott*, *cinchona* and *quinine*, *gerrymander*, and the note under *roses*.—*The New Education*.

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It is a good thing, pass it along; see page 31.

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MISSOURI—IMPORTANT HISTORICAL EVENTS.

1541—DeSoto landed on Missouri soil near New Madrid.

1735—Missouri settled by the French at St. Genevieve.

1764—St. Louis founded by Laclède.

1780—St. Louis attacked by the Indians, May 26th.

1799—Population, by Provincial Census (white and colored), 6064.

1803—Missouri acquired by the United States in the Louisiana purchase.

1804—Missouri placed under the United States authority as a district.

1808—First Newspaper established: "The Missouri Gazette," at St. Louis.

1809—St. Louis first incorporated.

1810—Howard County settled by 150 families from Kentucky.

1812—Missouri organized by Congress as a Territory, June 4th.

1813—William Clark appointed first Governor, by the President.

1817—First chartered school established: The Academy, at Potosi, February 1st.

1817—First Steamboat reached St. Louis, August 2nd.

1818—First United States Land Office opened at (old) Franklin.

1821—Missouri admitted to the Union, August 16th.

1821—Population, by State Census, 70,647.

1822—St. Louis incorporated as a city, December 9th.

1825—Gen. La Fayette visited St. Louis.

1826—First Legislature met at Jefferson City, November 20th.

1830—Population by United States Census, 140,304.

1831—Mormons located at Independence.

1838—First battle fought between Mormons and Gentiles.

1839—State University located at Columbia June 24th.

1840—Population by United States Census, 383,702.

1844—Great Flood in the Missouri River.

1849—Great fire in St. Louis, May 19th.

1850—Population by United States Census, 682,043.

1851—First railroad built, now the Missouri Pacific.

1854—Territories of Kansas and Nebraska formed.

1856—Great excitement prevailed over the slavery question.

1860—Population by United States Census, 1,182,012.

1861—Convention called to consider Federal relations, February 28th.

1861—Surrender of Camp Jackson to Federal authority, May 10th.

1861—Provisional Government formed with H. S. Gamble, Governor, July 31st.

1861—Battle of Wilson Creek, death of Gen. Lyon, Aug. 10th.

1861—Surrender of Lexington to Gen. Price, September 20th.

1861—Act of Secession passed by Legislature at Neosho, November 2nd.

1862—Gen. Price retreats from the State, February 12th.

1862—United States authority restored in Missouri, February 12th.

1869—Foundation of the great St. Louis bridge laid, October 27th.

1870—Population by United States Census, 1,721,295.

1875—Present State Constitution adopted.

1880—Population by United States Census, 2,168,380.

1890—Population by United States Census, 2,677,080.

RELIGION, morality, and knowledge, being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged.—*Ordinance of Northwest Territory, 1787.*

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We have about completed arrangements by which we hope to get the JOURNAL out earlier in the month. The next issue will be mailed much earlier than this one and by Dec. we hope to mail it on the first day. The next will be the Thanksgiving number, and we expect to make it a good one. Call the attention of your friends to the special offer and get them to subscribe now, so they will not miss it.

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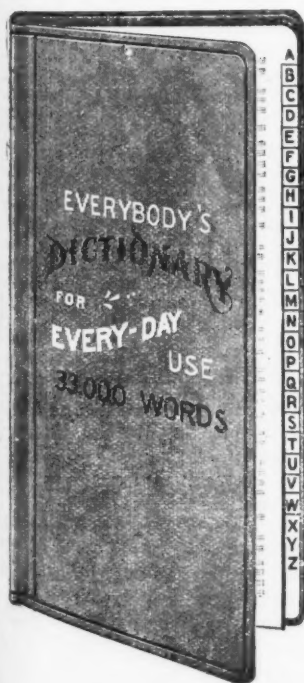
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MANUAL OF GRAMMAR. By W. M. Evans, President of the Western Normal College, Bushnell, Ill. Western Normal Pub. Co., Bushnell, Ill. Price 75 cents.

This is a grammar that is written by a practical teacher for class use. In the treatment of sentences such old chestnuts as "James struck John," "dogs bark," "horses run," etc., give place to those of some meaning as "James K. Polk was called Young Hickory. Illinois has no public debt," etc. In his treatment of Gender also we find no reference to the four genders which everybody knows are *not* distinctions in regard to sex—but he divides nouns into two classes, *neuter* nouns and *gender* nouns, the gender nouns being divided into masculine and feminine. Every teacher ought to own this manual whether it is adopted in his school or not.

PSYCHOLOGY IN EDUCATION. By Ruric N. Roark, Dean of the Department of Pedagogy, Kentucky State College, Lexington, Ky. American Book Company, Cincinnati, New York and Chicago. Three hundred and twelve pages, \$1.00.

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THE brilliant, logical and incisive writer, Helen H. Gardener, contributes her third paper on the history of the recent legislative Battle for Sound Morality in the *October Arena*. These contributions are of special value to all persons interested in protecting girlhood, and raising the standard of morality.

APPROPRIATE to the election season is an article written by Mr. Edward J. McDermott, of Louisville, for the October number of *The Century*, entitled "Fun on the Stump: Humors of Political Campaigning in Kentucky." Mr. McDermott has gathered many anecdotes of amusing experiences at the polls, but he laments the decline of public speaking, which he declares is by no means up to the old-time standard in Kentucky.

IN view of the memorable gathering at Lookout Mountain during the past summer, Bradford Torrey's paper on that region in the *October Atlantic Monthly* is of unusual interest.

MESSRS. Houghton, Mifflin and Company, of Boston, New York, and Chicago, announce for immediate publication two new numbers of their Riverside Literature Series: No. 83. George Eliot's "Silas Marner" (double number, paper, 80 cents; linen, 40 cents), and No. 84. Dana's "Two Years before the Mast" (quadruple number, paper, 50 cents; linen, 60 cents).

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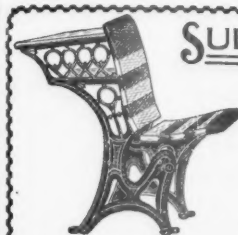


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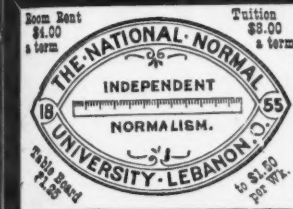
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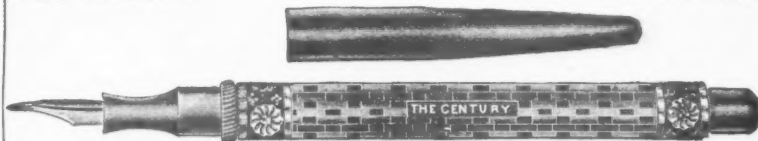
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